AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

Claims 1-13 cancelled.

14. (new) An analysis method of impurities and color centers in fluoride characterized in that the method comprises the steps of:

irradiating X-rays to a material comprising a part taken out of fluoride in a fused state in a melt process as a pre-process for a growth process of a single crystal comprising the fluoride;

comparing light transmittances of the material before and after the irradiation of X-rays with each other, thereby analyzing impurities and color centers in the material, to thereby determine a melt condition; and

then conducting growth of crystal.

15. (new) The analysis method of impurities and color centers in fluoride, characterized in that the fluoride is one of calcium fluoride, barium fluoride, and magnesium fluoride.

16. (new) The analysis method of impurities and color centers in fluoride of claim 15, characterized in that annealing is conducted before the X-ray irradiation.

17. (new) The analysis method of impurities and color centers in fluoride of claim 16, characterized in that the annealing is conducted at 300 to 400°C.

18. (new) The analysis method of impurities and color centers in fluoride of claim 16, characterized in that the annealing is conducted for 30 minutes to 2 hours.

19. (new) The analysis method of impurities and color centers in fluoride of any one of claim 14, characterized in that the material has a surface which is a mirror ground surface.

20. (new) The analysis method of impurities and color centers in fluoride of any one of claim 14, characterized in that the irradiation is conducted for a period of time of 5 minutes or longer.

21. (new) The analysis method of impurities and color centers in fluoride of any one of claim 14, characterized in that the X-rays are provided at an acceleration voltage of 20kV or higher and an electric current of 10mA or more.

22. (new) The analysis method of impurities and color centers in fluoride of any one of claim 14, characterized in that the X-ray irradiation is conducted multiple times.

23. (new) A production method of a single crystal growth oriented material, characterized in that the method comprises the steps of:

in a melt process as a pre-process for a growth process of a single crystal comprising fluoride, taking a part out of the fluoride in a fused state, and bringing the part into an analysis specimen;

analyzing impurities and color centers of the analysis specimen by the analysis method of any one of 14; and

determining an additive condition of a scavenger based on a result of the analysis.